NOTES

IN the interests of British science we have refrained now for some time from referring to the evil days which have fallen upon one of the most reputable of our learned societies. The time, however, has now come when silence is impossible. At the meeting of the Royal Astronomical Council yesterday, the Astronomer-Royal, in consequence of the recent action of the Council—an action inevitable when the present constitution of that body is considered—resigned his seat at the board. We cannot too much regret that this Society, the traditions of which are second to none in Europe, should have been utilised for some years past by an advertising clique who have everything to gain by their connection with a body of honourable students of science. The withdrawal of men long known for their astronomical work from the Council commenced some time since. It has now culminated in the resignation of the Astronomer-Royal, and we are informed that other resignations are to follow; indeed, a man of scientific repute risks somewhat in being found amongst the Councillors. Surely the Fellows of the Royal Astronomical Society of London are strong enough to remedy such a state of things as this.

AT the meeting of the Council of the Royal Society, held last Thursday, the following fifteen candidates were selected to be recommended for election. The day fixed for the election is Thursday, June 12:—J. Anderson, M.D., Rev. M. J. Berkeley, H. Bessemer, Prof. A. Crum-Brown, W. L. Buller, Sc.D., G. H. Darwin, Prof. J. D. Everett, Prof. F. S. B. François de Chaumont, Prof. G. D. Liveing, G. Matthey, G. J. Romanes, A. Schuster, Ph.D., Prof. H. G. Seeley, B. Williamson, and T. Wright, M.D. The following have been elected Foreign Members of the Society:—Arthur Auwers, Berlin; Luigi Cremona, Rome; Jean Louis Armand de Quatrefages, Paris; Georg Hermann Quincke, Heidelberg; Theodor Schwann, Liége; Jean Servais Stas, Brussels.

MACMILLAN AND CO. will publish shortly the following literary and scientific remains of the late Prof. W. K. Clifford. (1) A volume of mathematical papers which have been read before the Royal Society or contributed to scientific journals; Mr. Wm. Spottiswoode, F.R.S., will probably see this collection through the press. (2) Two volumes of collected essays and lectures, edited by Mr. Leslie Stephen and Mr. Frederick Pollock; Mr. Pollock will also contribute a biographical introduction to this work. (3) A small volume containing three popular lectures on "Seeing and Thinking."

WE regret to see by the Civil Service Estimates that the amount to be devoted to "Purchases and Acquisitions" in the Department of Zoology of the British Museum during the present financial year has been reduced by one-fourth, *i.e.*, from 1,200*l.* to 900*l.* It seems rather absurd that a Government which has shown its anxiety to meet the claims of science by giving 4,000*l.* a year to be distributed in "aid of research" by the Royal Society, should have taken such a step as this to save a miserable 300*l.*, especially when it was the universal complaint of naturalists that the sum previously granted was wholly inadequate to the purpose. We cannot help thinking that the Trustees and their Secretary are in fault in this matter.

A FURTHER circular, in addition to that referred to on p. 472, has been issued by the Meteorological Office, with regard to the conditions on which weather information will be supplied. These conditions are too detailed to be noticed here, but they show a desire on the part of the Office to give every facility both to residents in London and in the country to obtain descriptions of the actual state of the weather and forecasts for not more than one day in advance. No doubt a copy of the circular may be obtained on application at the Office, 116, Victoria Street, S.W.

M. RENAN was elected a few months ago a member of the Académie Française to fill the place vacated by the demise of M. Claude Bernard, the celebrated physiologist. On Monday, last week, he pronounced, before an immense audience, the *éloge* of his predecessor, in which he mentions that Claude Bernard must be considered as being the real founder of physiology in France. No public course of lectures was given before 1845, when M. Bernard established a laboratory, in the rue Saint Jacques, near the Panthéon. It was in this institution that the illustrious Academician conceived the idea of the great experiments which rendered his fame universal. But the establishment failed, M. Bernard having collected not more than five or six pupils.

THE Council of the Society of Arts offers one gold and three silver medals for the best suggestions founded upon evidence already published, for dividing England and Wales into districts for the supply of pure water to the towns and villages of each district.

"A CITIZEN AND FISHMONGER" very pertinently asks in Tuesday's *Times* why it is that while we hear so much from time to time of the City Guilds' Technical College, and of the Society for University Extension in London, we hear nothing of any proposal for the utilisation of Gresham College?

THE *Times* Geneva correspondent writes that the Lake of Neuchâtel is just now lower than has ever before been known, and continues to yield rich rewards to the researches of antiquarian explorers. Prof. Forel found, a few days since, at the lacustrine station of Corcelet, an earthenware vase dating from the age of bronze. On the bottom of the vase are plainly visible the impressions made by the fingers of the prehistoric potter in the plastic clay. Of these fingers—or, rather, of the thumb and forefinger, for the other digits are unfortunately lacking—the professor has taken a plaster of Paris cast and submitted them to a minute examination. He pronounces the maker of the vase to have been a woman. There are two impressions of the thumb and three of the forefinger. The prints left by the nails are perfect—that of the thumb, which must have been regular, well-shaped, and of an elegant convexity, measures in length twelve millimetres, in breadth eleven millimetres; the length and breadth of the finger-nail, equally well modelled, are eleven and nine millimetres respectively, the transverse convexity representing a curve or rise (*flèche*) of two millimetres. These nails, considers M. Forel, can only have belonged to a female hand. The vase has been placed in the cabinet of antiquities in the Vaudois Cantonal Museum at Lausanne. Another investigator, who has been cutting trenches in ground left bare by the abatement of the waters of the lake, has arrived, after careful examination of the *débris* and relics which his explorations have brought to light, at some interesting conclusions concerning the way in which certain of these lake-dwellings were destroyed, the time of the year when they disappeared, and the level of the lake at the epoch of their extinction. He believes they were destroyed by fire. This opinion he bases on the fact that, in all his explorations, he finds the same mixture of gravel and sand blackened and interspersed with charcoal and partly burnt seeds and bits of wood. This *débris* has evidently been carried to its present position by the waters of the lake, and varies in thickness according to the inclination of the slope on which it has been deposited. In other places besides those where the trenches have been cut, similar indications are observable—for example, at Bied, where, in sinking for the foundations of a house, a lacustrine cemetery was some time ago discovered; and at Colombier, where a stream running over the dry bed of the lake near the shore has laid bare *débris* identical with that brought to light by the excavations in question. From the quality and quantity of the winter stores, such as nuts, seeds, and berries, found among these remains, the burning of the lake-dwellings probably occurred in spring or early summer. In one place a vessel was found filled with acorns, which, not being a favourite food, would naturally, it is presumed, be left to the last, and only used in default of something more palatable. From these facts and considerations it is inferred that at the time when many, if not all, the lake villages of Neuchâtel fell a prey to the flames, its waters were at the height usual with them in spring before their level had been artificially lowered by the engineering operations recently undertaken for confining within their channels the streams of that part of the Jurassic range which dominates the valleys of Neuchâtel and Morat.

THE death is announced, on Tuesday, at the age of eighty-two years, of Sir Anthony Panizzi, formerly Principal Librarian of the British Museum.

WE regret to announce the death of Herr Ludwig Reichenbach, an eminent German botanist and zoologist. He died at Dresden on the 18th ult., aged 86 years.

THE German scientific world is much gratified at the distinction conferred upon Dr. Julius Schmidt, of Athens, by the French Academy of Sciences, which recently honoured Dr. Schmidt by presenting him with the Prix Volz in recognition of his work on the moon. This prize is only given for important astronomical work, and has not been awarded since 1870.

THE various German societies for the protection of animals are now keenly discussing the vivisection question and have arranged a congress, which will shortly meet at Gotha, and which is to fix the final resolutions.

DR. J. E. TAYLOR has concluded the seventh winter series of scientific discourses at the Ipswich Museum. These have been free, and the average attendance has been 500 per night. Dr. Taylor regards the local collection of the Ipswich Museum as probably one of the best geological museums in Europe. He deserves credit for his exertions in spreading a knowledge of science in the district in which he lives.

ON Easter Monday and following day, the Geologists' Association will have an excursion to Weymouth and Portland.

WE have received a small pamphlet of eighty pages, containing the numerous opinions which have been expressed on Prof. Church's position with reference to the Agricultural College at Cirencester. The result of the conduct of the College authorities is likely to be the establishment of a rival institution, to be ready in October next. If it be the case, as is so generally alleged, that the Cirencester institution is a failure so far as agricultural education is concerned, we cannot be sorry that steps should be at once taken to supply the want.

WE have received the first two parts of a very fine "Atlas of Histology," by Dr. Klein and Mr. E. Noble Smith. The work is intended to be a pictorial and literal representation of the structure of the tissues of man and other vertebrates, its chief aim being to teach not so much the history of histology as histology itself in its modern aspect. The delicate illustrations are executed with wonderful care and beauty.

THERE was a slight shock of earthquake on the 3rd inst. at Cadiz.

IN the year 1877 Mr. Clark Mills, of Washington, the well-known sculptor, visited St. Augustine, Florida, in the interest of the Smithsonian Institution and of the Peabody Museum in Cambridge, for the purpose of taking casts of the heads of certain Indian prisoners in Fort Marion. These prisoners had been captured some years before, and sent to Florida for safe keeping, and were in charge of Capt. R. H. Pratt, of the Army. Most of them had been guilty of grave offences against life and property. A visit to and interviews with these Indians have constituted the staple of the correspondence of visitors to St. Augustine for several years past. During the year 1878 this station was broken up, some of the Indians being released, and others transferred to Hampton, Virginia, where, under the charge of General Armstrong, there is an establishment for the education of certain negroes. By authority of the War Department, Capt. Pratt has recently gathered up a large number of Indian youth of both sexes, and taken them to Hampton, where they are subjected to moral and mental training, and show a great aptitude for learning. Quite recently, at the request of the Smithsonian Institution, Mr. Mills visited Hampton, and with the assistance of Capt. Pratt, has made a series of excellent casts of some fifty Indians of both sexes and different ages. They will in time be reproduced, properly worked up, and exhibited in the National Museum, which will thus, in more than a hundred busts from life of the American aborigines, possess a very remarkable anthropological collection. Numerous applications have been received from the anthropological museums of Europe for copies of these busts.

THE Gauss monument for the city of Brunswick is now very nearly completed, the casting taking place in the studio of Prof. Howald, at Brunswick, after Herr Schaper's model, the well-known Berlin sculptor. The figure will measure nine feet in height, and the great mathematician is represented in a fur coat with a book in his left hand, bearing the inscription "Disquisitiones," the work which rendered his name immortal. The head is said to be a masterpiece of the plastic art.

SOME new experiments on digestion (in which portions of the stomach in living dogs were isolated, and their phenomena studied) have been recently described by Herr Heidenhain in Pflüger's *Archiv*. He arrives at these two (preliminary) conclusions:—(1) Purely mechanical stimulation acts only locally on secretion of gastric juice; (2) The secretion (act), however, extends beyond the place of stimulation to distant parts of the mucous surface, when absorption occurs at that place. In other words, we must distinguish a primary and a secondary secretion. The primary is small and is produced by mechanical effect at the place of stimulation; the secondary is abundant and depends on the act of digestion, in so far as absorption is connected with this, in the stomach.

WE learn that experiments have been made at Mont Valérien by the French Ministry of War with a number of portable Gramme electro-magnetic machines and portable lenses for directing the rays to a great distance and exploring the horizon during night with the same accuracy as during open daylight. The optical apparatus is mounted on a special waggon and weighs no more than two or three tons. It has been ascertained that the machines can travel with the same velocity as mounted artillery. The electric light and directing-lines can also be used for signalling in a known direction at an immense distance, as from Paris to Orleans, if placed at a sufficient altitude.

RECENT researches by Herr Ammon prove that the gas-absorption of dry ground depends on various factors—varying with the state of mechanical division, and chemical nature of the constituents of the ground, and the temperature and nature of the gas. (Quartz, clay, lime, hydrated iron oxide, gypsum, and humus were examined as to their behaviour with various gases of the atmosphere and the ground under different conditions.) Physical forces have an undoubted *rôle* in the condensation, *i.e.*, the gases are held and condensed by surface-attraction of the particles of the soil; and as this attraction is a function of the surface the effect is greater the smaller the particles. But chemical forces seem to have often a larger share in the effects; this appeared most distinctly in the remarkable absorbing power of hydrated iron oxide, and soils containing most of it; which can only be attributed to chemical changes undergone on access of gases, in consequence of the easy decomposition of the constituents. The same holds good for humus materials; whereas with the other constituents the physical "moment" comes out more prominently. Those gases which are easily brought into the liquid state (H_2O, H_2S, CH_4, NH_3, and CO_2), and which undergo changes easily (NH_3, SH_2), are absorbed in greater measure by the constituents of soils, than gases which are not readily liquefied (O). Temperature has great influence; with increase of it the power of condensing gases diminishes. It is notable that at temperatures between 0° and 10° the gas absorption again diminishes. (A fuller account of these researches will be found in *Der Naturforscher* for March 15.)

ANOTHER new Italian journal has come to hand, *Vita Nuova*, published fortnightly. It is devoted to literature, science, and art, and the scientific notes seem to us to be done with care and discrimination, containing occasional information on scientific work in Italy. It is published at Padua.

THE *Colonies and India* states that excellent accounts have been received from Tasmania. Stone exceedingly rich had been discovered in the Alpine reef, Fingal district, estimated to yield 200 ounces of gold to the ton. Gold had also been discovered at Castray River in the North Meredith Range on the west coast.

MM. FIGUIER AND DE PARVILLE have issued their *Année Scientifique*, which is a summary of all the notable discoveries made during the past year.

THE additions to the Zoological Society's Gardens during the past week include a Black-backed Jackal (*Canis mesomelas*) from South Africa, presented by Mr. E. J. Redman; a Red and Yellow Macaw (*Ara chloroptera*) from South America, two Yellow-fronted Amazons (*Chrysotis ochrocephala*) from Guiana, presented by Mrs. Kelly; two Silver Pheasants (*Euplocamus nycthemerus*) from China, presented by Mr. W. Soper; two Bernicla Geese (*Bernicla leucopsis*), two Brant Geese (*Bernicla brenta*), a Bean Goose (*Anser segetum*), two Common Geese (*Anser domesticus*), two Ruddy Sheldrakes (*Tadorna rutila*), two Common Pintails (*Dafila acuta*), two Gadwalls (*Anas strepera*), four Chiloe Widgeons (*Mareca chiloensis*), two Common Widgeons (*Mareca penelope*), two Garganey Teal (*Querquedula circia*), two Common Teal (*Querquedula crecca*), European, four Canada Geese (*Bernicla canadensis*), a Summer Duck (*Aix sponsa*) from North America, two Mandarin Ducks (*Aix galericulata*) from China, three Australian Wild Ducks (*Anas superciliosa*) from Australia, a Wild Goose (*Anser ferus*), three Common Ducks (*Anas boschas*), British Isles, presented by Mr. R. J. Balston, F.Z.S.; a Tuberculated Lizard (*Iguana tuberculata*) from Trinidad, presented by Dr. J. F. Chittenden, C.M.Z.S.; two Mississippi Alligators (*Alligator mississippiensis*) from the Mississippi, presented by Lord Francis Conyngham, M.P., F.Z.S.; a Common Lobster (*Astacus vulgaris*), British Seas, presented by Mr. R. J. Milestone; two White-rumped Roe Deer (*Capreolus pygargus*) from Eastern Asia, a Chinese Water Deer (*Hydropotes inermis*) from China, received in exchange; two Common Boas (*Boa constrictor*) from South America, deposited; eight Indian Jerboa Rats (*Gerbillus indicus*) from India, purchased.

VIRCHOW ON THE PLAGUE

AT a recent meeting of the Medical Society of Berlin Prof. Virchow gave (by previous request) his views on the subject of the Plague of Astrakan. The following is a brief outline of his address (which appears in the *Revue Scientifique*):—

The information received about the plague is very uncertain and conflicting, necessitating reserve in giving an opinion. Russia is to be reproached for failure to send competent observers of the disease.

The first question is, What is the true determinant of the malady? No one would hesitate to say that the *buboes*, or swellings of the lymphatic glands, take the first place. But it is still doubtful whether or not certain acute forms occur without glandular tumour. (It is not merely the exterior glands that are referred to.) Typhoid fever, the most nearly related disease, is, of course, always (except in children) marked by a peculiar affection of the glands.

The pestilential bubo, like the alterations characterising many of our indigenous infectious diseases, consists in a cellular hypertrophy, with more or less hyperæmia and hæmorrhage. We come again to an obscure point in asking, how does a bubo of this kind ulcerate? The ulcerations in typhoid fever show suppuration, *within the glandular tissue*, round a dry mortified centre. Accounts by some of the best observers of pestilential bubo affirm suppuration *round the gland*. But the chief point is, what is the prime cause of the suppuration? And here I cannot affirm that the abscess of the gland arises from mortification of the gland. Some observers speak only of a softening of the substance. If partial mortification induced the ulcerations distinguishing plague, as they do those of typhoid fever, the analogy between the two diseases would be more marked.

Though we do not really know whether glandular affections are, from the outset, an essential character of the disease, they yet present the essential criteria for diagnosis of the plague.

[Prof. Virchow proceeds to object to Hirsch's view regarding the Indian Plague of Pali, in 1838, which showed peculiar symptoms, as a particular species of plague. Either it was the plague or it was not the plague. If the malady of Astrakan were a peculiar Indian plague we should not be warranted in identifying it with the well-known plague of the Levant, for this alone is the true plague. Hæmorrhage of the urinary organs (as in the plague of Pali) is very common even in the Oriental plague; but he would not therefore create a special hæmaturic species of the plague, but say that hæmaturia is often a symptom of the plague. He does not now refer either to this plague of Pali nor to a known endemic plague, restricted to two districts of the Himalayas.]

Another special character of Oriental plague is carbuncle; it occurs in nearly a fifth of the cases; the symptoms are like those of ordinary contagious carbuncle. There is no sufficient evidence of carbuncle in internal organs. Then there are the petechiæ, or spots, and interior hæmorrhages. Tumour of the spleen seems very constant, and of great importance, and we find also tumefaction of the liver and kidneys. The swellings of the glands, the carbuncles, and the petechiæ are the most important symptoms.

At the beginning of most pestilential epidemics a Committee of doctors has generally declared that it was not the plague. They pronounced it petechial typhus. This was the case immediately before the outbreak of the plague at Rescht, when the disease had been long confined in Kurdistan and Mesopotamia. M. Tholozan was the first to say it was plague, and that the case was that, not of a great epidemic, but of a latent disease, spreading slowly and attacking only a few. It is indubitable that we have there a true centre, whence the disease gradually spread, and I do not see why we should go to India, where the disease has not prevailed for many years past. Proceeding logically, we shall accept this course: From Kurdistan and Mesopotamia to Persia and on to beyond the Caspian. Even if the present cases on the other side of the Caspian were accompanied by pneumorrhagia, I would not hesitate to say they belonged to the plague proper, and that the disease is the same as that in Mesopotamia. The symptoms are very different from those of petechial typhus, the disease which the Turkish doctors affirmed. If near Salonichi (Xanthi) there be really petechial typhus accompanied by *Metastasis bubonica*, I fear it is the plague. It remains to keep our eyes open and see what happens after the return of the Russian army from the infected country (an occurrence which may well rouse grave apprehensions).

What has been done for our protection is little apt to tranquillise us. A blockade comprising all the frontier as well as the coast, from the Baltic to the Black Sea, seems to me illusory.

One example of severe quarantine has occurred in this century in the case of the plague at Noja, in Bari (Kingdom of Naples), in 1815. Trenches were dug, and three cordons of sentinels were